It has been shown herein that the assay for RB phosphorylation was readily adaptable to studying material from *in vivo* sources.

CLAIMS

1. A method of monitoring the activity of roscovitine comprising
(i) administering roscovitine to a cell, group of cells, an animal or human, and
(ii) detecting the presence of phosphorylated erk1/2.

2. A method according to claim 1, wherein roscovitine is administered to a mammal.

3. A method according to claim 1 or 2, wherein roscovitine is administered to a human.

4. A method according to claim 1, wherein the group of cells is a cell culture.

5. A method according to claim 5, wherein the cells are selected from HT29, KM12 and HCT116 cells.

6. A method according to claim 2, wherein the animal is an animal *model a* LoVo or KM12 xenograft mouse model.

7. A method according to any previous claim, wherein the presence of phosphorylated erk1/2 is detected in tumor cells or lymphocytes.

8. A method according to any preceding claim, wherein erk1/2 phosphorylation is monitored at least 24 hours after administration of roscovitine.

9. A method according to any preceding claim, wherein erk1/2 phosphorylation is monitored at least 48 hours after administration of roscovitine.

10. A method according to any preceding claim, wherein the level of phosphorylated erk1/2 is greater than that detected prior to administration of roscovitine.

11. A method according to any preceding claim, further comprising monitoring the level of phosphorylated retinoblastoma (RB) protein.

12. A method according to any preceding claim, wherein the level of phosphorylated retinoblastoma (RB) protein is less than that detected prior to administration of roscovitine.

13. A method according to any of claims 8 to 12 wherein the level of phosphorylated erk1/2 is monitored after 24 hours and the level of phosphorylated retinoblastoma (RB) protein is monitored at least 72 hours after administration of roscovitine.

14. A method of assessing suitable dose levels of roscovitine comprising monitoring the degree and rate of erk1/2 phosphorylation after administration of roscovitine to a cell, group of cells, animal model or human.

15. A method according to claim 14, further comprising correlating the degree and rate of erk1/2 phosphorylation with the known rate of inhibition of either CDK2 or RB phosphorylation by roscovitine at the same dosage, over the same time period.

16. A method of monitoring the activity of roscovitine in a cassette dosing assay whereby a cocktail of roscovitine and other CDKI's are administered

together and roscovitine activity is monitored in accordance with a method of claim 1 to 13.

17. A method of identifying a candidate drug having roscovitine-like activity comprising administering said candidate drug to cell, group of cells, animal model or human and monitoring the presence or absence of erk1/2 phosphorylation.

18. A method according to any preceding claims, wherein roscovitine is R-roscovitine.

19. Use of phospho-erk 1 and/ or phospho-erk 2 in the monitoring of activity of roscovitine.

20. Use according to claim 19, wherein the presence of phosphorylated erk 1 and/or erk 2 is monitored after the administration of roscovitine to a cell, group of cells, an animal model or human.

21. Use according to claim 19 or 20, wherein roscovitine is R-roscovitine.

22. A kit for assessing the activity of roscovitine comprising antibodies for at least one of phospho-erk1 or phospho-erk2 and optionally antibodies for RB (whole), RB Ser780 or RB Ser608.

23. A kit according to claim 22, wherein the antibodies are for phospho-erk1 or phospho-erk2 alone or in combination with one of the RB antibodies.

24. A kit according to claim 23, wherein the RB antibody is for RB Ser608.

25. A kit according to any of claims 22-24, wherein roscovitine is R-roscovitine.

26. Use of a kit as defined in any of claims 20 to 22, in a method defined in any of claims 1 to 13.